CLAIMS

1. A distance measuring method for measuring the distance to a target by measuring the time required for a beam of light to go to and return from the target, said method comprising steps of:

shooting the target with a beam of light;

converting the beam returned from the target into an electric signal and generating a light reception signal;

generating an inversion signal by inverting polarity of the light reception signal and shifting relative potential level of two signals so as to make said light reception signal and said inversion signal produce an intersection;

comparing said light reception signal and said inversion signal for electric potential; and

determining the time of reception of the beam of light returning from said target based on an outcome of said potential comparison.

2. A distance measuring apparatus for measuring the distance to a target by measuring the time required for a beam of light to go to and return from the target, said apparatus comprising:

a light reception means for converting received light into an electric signal;

a clamp/inversion means for clamping and inverting an output of said light reception means;

a comparison means for comparing the output of said light reception means and an output of said clamp/inversion means; and

a means for identifying the time of light reception based on an outcome of said comparison means.

3. A distance measuring apparatus according to claim 2, wherein said means for identifying the time of light reception detects the time from the temporal point of inversion of the magnitude relationship between the output of said light reception means and the output of said clamp/inversion means and the temporal point of another inversion of the magnitude relationship and uses a predetermined value in place of the detected time when it exceeds a limit level.

4. A distance measuring apparatus for measuring the distance to a target by measuring the time required for a beam of light to go to and return from the target, said apparatus comprising:

a light reception element for converting the received light into an electric signal and generating a light reception signal;

a clamp/inversion circuit for inverting polarity of said light reception signal generated by said light reception element, shifting the potential of said light reception signal high and generating an inversion signal intersecting said light reception signal at two points;

a comparator for comparing said light reception signal generated by said light reception element and said inversion signal generated by said clamp/inversion circuit; and

a light reception temporal point determining circuit for receiving the output of said comparator and determining the light reception temporal point between a first temporal point for inverting the magnitude relationship of the light reception signal generated by said light reception element and said inversion signal generated by said clamp/inversion circuit and a second temporal point for once again inverting the magnitude relationship thereof.

5. A distance measuring apparatus according to claim 4, wherein said light reception temporal point determining circuit is provided with an upper limit value for the time between said first temporal point and said second temporal point and adapted to take a temporal point after a predetermined time from said first temporal point for the second temporal time when the upper limit value is exceeded.

6. A distance measuring apparatus according to claim 5, wherein the upper limit value of said light reception temporal point determining circuit is about twice of a half of the width of the irradiated optical pulse and said circuit is adapted to take the end of the time twice as long as a half of the width of the

optical pulse from said first temporal point for the second temporal point.

7. A distance measuring apparatus according to claim 4, wherein said light reception temporal point determining circuit is adapted to select the middle point of said first temporal point and said second temporal point as light reception temporal point.

8. A distance measuring apparatus according to claim 5, wherein said light reception temporal point determining circuit is adapted to select the middle point of said first temporal point and said second temporal point as light reception temporal point.

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